DOCUMENT RESUME

ED 345 965 SO 021 619

TITLE	Recycling: Special Lesson Plans for Civic Achievement Award Program and CAAP in Action Teachers.
INSTITUTION	Close Up Foundation, Arlington, VA.
SPONS AGENCY	Burger King Corp., Miami, FL.
PUB DATE	91
NOTE	12p.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	*Citizen Participation; *Citizenship Education; Community Action; Community Responsibility; Current Events; Elementary Education; *Environmental Education; *Recycling; Social Change; Social Problems; Student Educational Objectives; Student Participation

ABSTRACT

These lesson plans are designed to help fifth- through eighth-grade students learn about recycling, and to help them understand that recycling is one important environmental action citizens can take. The lesson plans are composed of objectives, homework assignments, main activities, and enrichment activities. (DB)

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Recycling

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Special lesson plans for Civic Achievement Award Program and CAAP in Action teachers

Recycling

Provided by the Close Up Foundation and Burger King Corporation in cooperation with the Take It Back Foundation

Introduction

The Close Up Foundation and Burger King Corporation are pleased to present you with these lesson plans on recycling. We are indebted to the Take It Back Foundation for allowing us to send to your principal a copy of a new music video featuring "Yakety Yak—Take It Back," as well as a series of public service announcements that are being distributed to television stations across the country. Accompanying the videotape is a resource booklet on reusing, reducing, recycling, and buying recycled.

Rationale

More than previous generations, we can truly say that we are citizens of a global community and, together with others around the world, may be facing an environmental crisis of serious proportions. Efforts to save our fragile planet cannot be left to others. Every citizen needs to engage in private and public initiatives to keep the earth safe for today and for generations to come. Citizens need to be aware of the state of the planet and to understand that they can act to improve the environment. These curriculum materials are designed to provide students with the what, why, and how of taking environmental action.

For students (and for adults as well), the enormity of improving our world might seem overwhelming. But the theme of the environmental movement—"Think Globally, Act Locally"—helps make the task manageable. Recycling, an activity that begins locally, has global repercussions. These lesson plans focus on recycling as one important environmental action citizens can take.

Goals

1. To provide an understanding of recycling, its components and merits
2. To demonstrate that recycling requires both private (individual and business) and public (governmental) action
3. To provide opportunities for students to assess their lifestyles within the context of recycling
4. To help students identify how their own communities approach recycling
5. To encourage action that will promote recycling by individuals, by schools, and by the community

Implementation

The lesson plans are designed for fifth- through eighth-grade students. The amount of time required to complete the activities will depend on the grade and ability levels of the students, as well as the implementation strategy that fits best with your ongoing classes. Other factors that could affect the amount of class time required are your students' present knowledge about recycling and the extent to which your school and/or community are already involved in recycling efforts. There are ample activities for at least six class sessions; this number could easily be expanded. You should feel free to adjust the lesson plans to meet your needs.

RECYCLING: WHAT, WHY, AND YOU

Objectives

- To develop a definition of recycling
- To identify the reasons for recycling
- To determine what can be recycled
- To consider one's personal habits of waste disposal

Homework Assignment: "A Day of What I Throw Away"

Two days prior to starting the unit, ask students to carefully record everything they discard or throw away during the course of one day. Be sure students include everything from gum, apple cores, straws, and wrappers to cans and bottles. Try to have students include items that involved them even if they did not personally discard the items, such as the container that was opened at dinner or the plastic milk carton at breakfast. The information they collect will be needed during Activity 2.

Although the focus of this unit is recycling, you may want to encourage the reuse of paper by having the students write their lists on the back of already used paper. If students are already recycling some items, you might ask them to write those down as well, but to indicate with an asterisk or some other mark that the item was recycled rather than thrown away.

It will be a fairly difficult task to remember to write everything down. You may want to suggest ways to help students remember, for example, wearing a pencil around their necks or taping their list to themselves. You could ask the students to come up with their own creative ideas as to how they will remember to keep their lists. You should also consider making a list yourself.

Activity 1: Defining "recycle" and identifying reasons why recycling is important

1. Divide the students into small work groups.

2. Ask each group to develop a definition of "recycle."

3. After they have written their definitions, have the work groups brainstorm why recycling is important.

> For the brainstorm, have one student in each group be the recorder. Explain to the students that the object of a brainstorm is to let ideas spin off one from another. All group members' ideas should be recorded in a "laundry list" without anyone making judgments about the merits of any of the ideas. If the students get stuck during the brainstorm, you may want to assist them by asking "Where does trash go if it is *not* recycled?" This should help lead them to overcrowded landfills and litter as two of the reasons recycling is important.

4. Reconvene the entire class.

5. Have the small groups share their definitions of "recycle" with the rest of the class.

6. Combine the definitions to arrive at a single definition. (Write the definition on newsprint, the chalkboard, or in some way that it can be posted.)

> The Take It Back Foundation information sheet that accompanies these plans is a resource for this activity. It includes a definition of recycling, as well as eight reasons for recycling.

7. Have the small groups share their brainstorm of why recycling is important.

8. Combine the brainstormed ideas into one master list. (As with the definition of "recycle," write the reasons in a format so they can be posted.)

> If the students did not come up with all of the eight reasons mentioned in the Take It Back Foundation information sheet, you might want to bring these to their attention in a class discussion.

9. Post the common definition and list of reasons for use during the rest of the unit.

Enrichment Activities

- Visit a landfill. Take note of the types of items that could have been recycled.
- Bring a potpourri of your discards to class (or have the students bring their own). Have the students turn them into art objects or usable products.

Activity 2: Determining what can be recycled and categorizing the homework assignment, "A Day of What I Throw Away"

Note: For this activity, students must bring to class their lists from the "A Day of What I Throw Away" assignment. You will also need copies of the handout, "Trash Tally," which is provided as a reproducible master accompanying these lesson plans.

1. Have the class develop a list of the kinds of materials that can be recycled. Record the list on newsprint or on the chalkboard. (Later in the activity, the actual number of items the students discard will be recorded next to some of the materials on the list.)

> The purpose of this list is to try to determine what recyclable items are actually made of. In other words, this list should indicate "aluminum" rather than "soda pop can," or "glass" rather than "peanut butter jar." The list should be as inclusive as possible and identify all recyclable materials.
>
> *The completed list should include the following:*
>
> | | | |
> |---|---|---|
> | Paper | Glass | Leaves |
> | Cardboard | Aluminum | Grass clippings |
> | Newspaper | Tin | Food waste (egg shells, apple cores, etc.) |
> | | Batteries | Plastic* |
> | | Motor oil | Polystyrene* (styrofoam—yes, it actually can be recycled) |
>
> Make sure your students understand that these materials are recyclable, although they may not be recycled in your community. Also be aware that while plastic and polystyrene are recyclable, they are not often recycled. Facilities for recycling these two materials are limited, and a negligible amount of each is presently being recycled.

2. Post the list where students can refer to it.

3. Divide the students into small work groups. (These groups can be the same or different from those formed during the first class session. Students need to bring their individual lists from "A Day of What I Throw Away" to their small groups.)

4. Give each group several copies of the handout, "Trash Tally."

5. Ask the students to compile their individual lists onto "Trash Tally," filling in all the categories for each item.

> As the students fill in Column II, "Made of," make sure they use the terms you agreed upon during steps one and two of the activity ("glass," "aluminum," and so forth).

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6. After they have filled in "Trash Tally," ask the students to look at Column II—"Made of." Have them count how many times each material appears in that column, for example, plastic—25; paper—101; and so forth. These totals will tell how many items made of each material were thrown away in a day by each small group.

7. Reconvene the class and have each group present their findings.

> At this stage you will probably want each group to focus primarily on Columns I and II of "Trash Tally," telling how many items they threw away in one day and what kind of materials the items were made of. Columns III and IV will be discussed later.

8. Add up the small group totals from Column II of "Trash Tally" and write class totals next to each material on your master list from steps one and two above. (You may need to add some different materials to your list based on what students threw away. Totals will be needed later in the unit.)

9. Lead a discussion about the "Recyclable?" column of "Trash Tally."

> *Discussion questions could include:*
>
> Are students unsure whether certain items are recyclable?
>
> How could they go about finding out if they are?
>
> Did students distinguish between types of paper?
>
> (Some paper, such as notebook and copy paper, is recyclable; other types, such as candy wrappers, cannot be recycled because of the finishes and adhesives used.)

10. Discuss the "Recycled in Our Community?" column of "Trash Tally."

> *Discussion questions could include:*
>
> Do students know what is recycled in your community?
>
> How could they find out?
>
> Are there some items on their lists that individuals might recycle, such as food waste in a compost pile?
>
> Do students know whether all types of metal are recycled in your community?
>
> What types of plastics, if any, are recycled?
>
> If you know that certain materials are recycled locally (for example, aluminum) the discussion can move to personal and school behavior. Does the school recycle its aluminum? Do the students and their families recycle their aluminum? Is it recycled at their parents' workplaces?
>
> For older students, the discussion might include the topics of source reduction and precycling. Examples of these are buying in bulk, not buying individual servings of products or overpackaged products, repairing broken items instead of discarding them, and using durable goods (a string bag instead of plastic and paper bags or a cloth towel instead of paper towels). Other actions are buying products that have already been recycled, as well as buying recyclable products. If, for example, aluminum is recycled in your community but glass is not, citizens can buy beverages in cans instead of glass bottles so that the cans can be recycled.

11. Collect and save the tally sheets. You may want to refer to them in preparing for other activities in the unit.

Homework Assignment

Depending on what comes out in the discussion, the class may decide that they need to gather more information. You may have discovered some items about which you and your students were unsure as to their "recyclability." You also may have identified some items that are recyclable, but you do not know if your community recycles them. Decide together how you can find out the answers to your questions. Perhaps one of the parents is a resource. Library research might be a useful approach. You could check the yellow pages under "recycling centers" or "scrap." Your city government should be able to tell you what materials are recycled in your community. The Public Works Department or mayor's office might be places to start.

Enrichment Activities

- Make posters or collages that illustrate or encourage recycling to put up in the school or local businesses.
- Get town or plat maps and mark recycling locations. The maps could be posted in stores or other public places.
- Talk to people on the street about recycling. Younger students should perhaps be accompanied by an adult.
- Trace a product from its sources through its production. Compare the difference in energy expenditure and cost between "starting from scratch" or recycling the product. For example, determine the components of a glass jar. Where do they come from? What type of energy does it take to turn them into glass? How much energy and natural resources would be saved if the jar were made from recycled material?

RECYCLING: WHAT CAN WE DO?

Objectives

- To demonstrate that recycling requires private (individual and business) and public (governmental) action
- To plan and take some individual action in regard to recycling
- To plan and carry out a group action in regard to recycling

Activity 3: Understanding the private/public aspects of recycling and taking individual action

1. If the class conducted research on "recyclability" and/or research about what can be recycled in your community, the findings should be reported.

2. Show the music video "Yakety Yak—Take It Back."

3. Discuss the private and public aspects of recycling. The video should help provide examples of the interplay between the public and private sectors.

> Discussion points: Recycling usually requires both private and public action. Students must put their cans in the recycle bin (private action) in order for the municipality to collect them (public action). Or state governments must enact legislation (public action) to encourage private industry to take on the task of recycling (private action). In this latter case, citizens still need to bring their cans/bottles to recycling centers (private action).
>
> There are a few instances in which recycling could be a purely individual matter; for example, a family might make a compost pile out of organic waste. The recycling of paper may also be a private venture, with commercial organizations collecting the paper from business establishments and selling it to paper companies.

Point out that all recycling has to start with individuals taking action by getting the can/bottle/paper/whatever into the recycling container and by buying recycled and recyclable products. Each of us taking these private actions is not enough, however. *We must encourage others to act as well.* We must share our knowledge and creatively work together to reuse, reduce, recycle, and buy recycled.

5. Look again at the class totals of materials (glass, aluminum, plastic, and the like—Column II of "Trash Tally" that was compiled in the last activity) that students discard in a day. Discuss each of the materials, one at a time, asking the following questions about each:

   Is the material recyclable?
   Is the material recycled in our community?

   Answering these two questions is a review of Columns III and IV of "Trash Tally." If your students easily completed Columns III and IV, you may choose to bypass this step by simply asking your students, "What materials can we recycle in our community?"

6. For each material that can be recycled in your community, ask for a show of hands as to whether the students and their families recycle it.

   This step will provide the class with a sense of how many families are recycling and which materials seem to be recycled the most.

7. Ask the students to give reasons they think their families do or do not recycle.

   For students whose families do recycle, you might to start with the question, "Why did your family start recycling?"

   For students whose families do not recycle, you might start with the question, "What do you think prevents your family from recycling?"

8. Divide the class into pairs or groups of three and have them discuss possible individual actions. Ask each student to decide on a recycling action that he or she will take as an individual.

   You may want to form the pairs or groups of three by mixing students whose families already recycle with those whose families do not. Students can help one another develop realistic plans for individual action. Even in situations in which students are already recycling, plans can be made that will improve the process. Encourage students to come up with action plans that are ongoing and involve a lifestyle or behavioral change.

   Types of individual/family actions that could be encouraged are:

   Take on the chore of separating recyclables at home.

   (Accurate separation is important because contamination can occur if materials are separated improperly; for example, one small piece of ceramic can contaminate an entire truckload of glass.)

   Use a plastic container for sandwiches at lunch instead of plastic bags or aluminum foil.

   Buy recycled notebook paper.

   Use refillable pens and pencils.

   Write to corporations asking them to use recycled packaging materials and to avoid overpackaging.

   Use canvas or string bags instead of plastic or paper when shopping.

9. Have each student write down the action he or she intends to take. Have the other student or students in the pair or group of three sign their names underneath the action to indicate that they have read and understand it.

Homework Assignment

Carry out individual action plan.

Enrichment Activities

- Students could write their own verses to "Yakety Yak." These could be sung individually or as a group to the class or in an assembly; to the PTA, Lions Club, or Chamber of Commerce; or at a television or radio station.
- Start a compost pile at school or at home.
- Construct a classroom "mini-composting" experiment. This can be accomplished using a jar, organic wastes, and worms. The science teacher in your school might be able to help set up the experiment.

Activity 4: Carrying out a group recycling initiative

1. Ask the pairs and groups of three to report to the class about their progress on their individual action plans.

2. Show some or all of the public service announcements (PSAs) included on the Take It Back Foundation videotape.

   Let the students know that the PSAs are being distributed to television stations across the country. As the students view them, you may want to ask them to choose which ones they think are most appropriate to the needs of your community.

3. Based on all the information gathered to date about recycling in your community, lead a discussion about what the class could do to promote recycling in your school and/or community.

   Discussion questions could include:

   Do students think that citizens know what can be recycled in your community? If not, how could citizens become better informed?

   If citizens do know *what* can be recycled, do they know *how* to go about recycling in your community? If not, how could they become better informed?

   Is your school participating in recycling? If not, why not? How could the school start?

   What do students think would encourage others to recycle?

   Should your community be recycling additional materials? What could you do to encourage either your state or community to recycle additional materials?

4. Decide on an action that the class wants to take to promote recycling.

   Possible actions are:

   Start a recycling program at your school.

   Write or call your local television station to encourage them to play the Take It Back PSAs.

   Write your own PSAs about recycling for use over the local radio station or over the PA system.

   Write letters to the editor of the local paper.

   Make a bulletin board that tells about recycling in your community.

   Make a videotape about recycling in your community.

   Organize special community litter pick-ups during which trash is separated for recycling.

   Lobby your city government to increase recycling efforts.

   Write to your state legislature asking them to enact recycling legislation.

   Write to members of Congress requesting that the government recycle and buy recycled products.

5. Organize tasks and take action!

Enrichment Activities

- Participate in a class or school recycle day or week, with cooperation from the administration.
- Ask the local paper to start a regular column on recycling. Write or provide information for the column.
- Make posters about recycling to send to the local high schools or other area schools.
- Write to schools in other states to find out what other communities are doing about recycling.
- Take an entrepreneurial approach. Think of ways you can use recycling to raise money for school projects.

Activity 5: Reflecting on results

1. Have students return to their pair or group of three to report on the progress of their individual actions.

2. In the pair or small group, ask the students to discuss the group action as well, telling one another what they thought went well and what they thought could be done differently next time.

> You might have the students write down their thoughts, or you might choose to come up with a brief evaluation form.
>
> *Evaluation questions could include:*
>
> What did you learn about recycling in our community?
>
> How successful do you think the group action was?
>
> Were you able to carry out your individual action plan? If not, why not?
>
> What is the most interesting thing you discovered about recycling?
>
> What other actions can you take regarding recycling?

3. Reconvene the entire class and have the students share their reflections and assessment. Determine if further action should be taken as a group. Ask students what they now plan to do as individuals.

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Trash Tally

COLUMN I	COLUMN II	COLUMN III			COLUMN IV		
Item	Made Of	Recyclable?			Recycled in Our Community?		
		Yes	No	Don't Know	Yes	No	Don't Know

WHAT IS RECYCLING?

Recycling is, simply, the reuse of materials to the maximum extent possible.

Most of us are familiar with the recycling of certain items, such as aluminum cans and newspapers, in our daily lives. However, many additional materials—including glass, oil, and some plastics—could and should be recycled.

WHY IS RECYCLING IMPORTANT?

Recycling is an eight-pronged attack on our planet's most serious problems. Recycling:

1. *Prevents Direct Spoilage of Air, Land, and Water.* Dumping wastes into waterways creates an obvious environmental threat, and incinerating garbage pollutes the air. Even wastes buried in landfills are not safe—as wastes degrade, harmful, even toxic, chemicals leech into the soil, ultimately finding their way into the water supply. Certain materials give off harmful gases as they decompose. Styrofoam, for example, gives off compounds known as CFC's, which destroy the ozone layer that protects the Earth's inhabitants from dangerous ultraviolet rays. By reducing waste disposal, recycling reduces pollution from each of these sources.

2. *Saves Natural Resources.* A material reused is a material saved. Recycling greatly reduces consumption of limited resources such as timber (used to make paper), aluminum (used in cans and foil), and petroleum products (used to make plastics).

3. *Reduces Industry's Impact on the Environment.* By reducing demand for raw materials, recycling reduces undesirable practices such as oil drilling, stripmining, and timber cutting. In addition, reuse and conservation of processed materials reduces the need for industrial processing with its attendant pollution of air, land, and water.

4. *Preserves Open Space.* Nothing is ever truly "thrown away"—unless recycled, waste is only "moved away" to another location, usually a landfill (or "dump"). Recycling reduces the need for landfills, preserving open space.

5. *Reduces Litter and Illegal Dumping.* Remember the heyday of the "returnable bottle"? Recycling creates an even stronger incentive to "put litter in its place." More critical, recycling of wastes that contain dangerous chemicals (for example, used motor oils can contain cancer-causing compounds) can reduce illegal dumping of toxic materials.

6. *Improves Soil For Gardening and Farming.* Mulching and composting organic matter not only saves landfill space, it actually nourishes soil. Recycling organic waste in this way also decreases reliance on dangerous chemical fertilizers.

7. *Reduces Consumer Costs.* Reusing containers such as grocery bags whenever possible cuts the overhead cost to stores of providing these materials. Refusing to purchase products that are overpackaged casts an economic vote against that wasteful practice and may ultimately reduce the cost of consumer goods, as producers are discouraged from competing through reliance on expensive overpackaging.

8. *Breaks the Cycle of Many Global Environmental Dangers.* Many global environment problems, such as ozone depletion and the "greenhouse" effect, stem in part from waste or pollution of natural resources—waste which could be avoided by recycling. The greenhouse problem, for example, is exacerbated by the cutting of trees that would otherwise absorb carbon dioxide. Recycling is a simple act with a tremendous effect in preventing these seemingly complex problems.

Developed and provided courtesy of the Take It Back Foundation, Burbank, California.